

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 91-130

WATER RECLAMATION REQUIREMENTS FOR:

CENTRAL CONTRA COSTA SANITARY DISTRICT,
CONTRA COSTA WATER DISTRICT,
SHELL OIL COMPANY, TOSCO CORPORATION,
AND RHONE-POULENC

CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. Central Contra Costa Sanitary District (hereinafter called CCCSD) operates an activated sludge wastewater treatment plant in Martinez, Contra Costa County. This plant provides secondary treatment for domestic and industrial wastewater from Central Contra Costa County, and has an average dry weather flow capacity of 45 million gallons per day (MGD). A portion of the flow from the plant is reused by local industries for various purposes after further treatment at the Central Contra Costa Water Reclamation Plant (hereinafter referred to as the Reclamation Plant) located at the wastewater treatment facilities.
2. The Contra Costa Water District (hereinafter called CCWD) is the water purveyor for the Martinez area and other parts of Contra Costa County. The CCWD is responsible for providing water to both residential and industrial users.
3. On March 20, 1979, the Board updated water reclamation requirements for CCCSD, the CCWD, and a number of industrial reclaimed water users in the Central Contra Costa County area.
4. Details of the reclamation project are described in a report submitted by CCCSD and the CCWD, dated October 1990, titled "Engineering Report for Industrial Water Reclamation Project", as amended by a letter dated May 3, 1991. The respective locations of the CCCSD treatment plant, CCCSD and CCWD reclamation facilities, and the industrial users are shown on Attachment A which is hereby incorporated as part of this Order.
5. CCCSD and the CCWD conducted a demonstration project from July, 1988 to December, 1988 during which approximately 100 million gallons of reclaimed water was delivered to Shell Oil Company and TOSCO Corporation. The results of the demonstration project are included in a report submitted by CCCSD and the CCWD dated July 1989, titled "Report on the Demonstration Phase of the Industrial Reclamation Project".
6. Construction of the reclamation facilities began when the filtration plant was built near the CCCSD treatment plant in 1974. The CCWD completed construction in 1978 of a 15 MGD capacity sodium ion exchange (NaX) water softening facility which is located near the CCCSD treatment plant as

shown on Attachment A. CCWD facilities provide disinfection as well as softening and possible ammonia removal. The CCWD facilities also include a pressurized distribution system. Other treatment facilities that may be utilized as part of the reclamation process include reverse osmosis and ion exchange for industrial cooling and boiler feed water. These facilities may be located at either the NaX Plant or at the industrial users site as shown on Attachment A.

7. The reclamation facilities consist of coagulation, filtration, and disinfection. Hardness and phosphorus, and ammonia removal may also be included in the treatment process as necessary and appropriate for industrial reuse. The reclaimed water receives secondary treatment and filtration at the CCCSD's treatment plant. Ammonia removal may take place during the biological secondary treatment process by nitrification at the CCCSD facilities or at the industries reverse osmosis systems. Following filtration, the water is chlorinated for disinfection and delivered to the industries through a transmission system constructed in 1978.
8. The reclaimed water may be used for a variety of purposes at the industrial facilities, including uses such as fire fighting, dust control, compaction, and irrigation. However, the predominant uses of reclaimed water at each site are as follows:
 - A. Shell Oil Company - cooling water, boiler feed, construction use
 - B. TOSCO Corporation - cooling water
 - C. Rhone Poulenc - cooling water, wash water for pond closure
9. The reclamation project produces and delivers up to five million gallons per day of reclaimed water to Shell Oil Company, TOSCO Corporation, and Rhone Poulenc. The industries will use a blend of up to 25 percent reclaimed water and 75 percent raw water from the Contra Costa Canal. This mixing ratio is not set at these percentages, and may change if additional measures are taken for phosphorus removal. Therefore, the quantity of reclaimed water used by the industries may increase over time.
10. The Title 22 of the California Administrative Code does not specify a treatment level for the use of reclaimed water in cooling towers. However, the Department of Health Services (DOHS) requires that reclaimed water used for this project be treated to meet the strictest quality criteria of Title 22 due to the potential for human contact with aerosols from the cooling towers. These criteria require an adequately disinfected, oxidized, coagulated, clarified, and filtered wastewater, or wastewater treated through a sequence of unit processes that will assure an equivalent degree of treatment and reliability.
11. Adequately disinfected means that, at some location in the treatment process, the median number of total coliform organisms, determined from coliform numbers for the previous seven days, does not exceed 2.2 per 100 millimeters; and the number of coliform organisms does not exceed 23 per 100 millimeters in more than one sample within any 30-day period.
12. Adequately filtered means that the turbidity after filtration cannot exceed an average operating turbidity of two nephelometric turbidity units (NTU) and does not exceed five turbidity units more than five percent of the time during any 24-hour period. Adequately filtered also requires

coagulation and clarification, or equivalent, prior to filtration, and the turbidity before filtration must be at or below 10 NTU.

13. The responsibility for the treatment of reclaimed water lies jointly with CCCSD and the CCWD. CCCSD is responsible for all wastewater treatment from primary treatment through tertiary filtration. Following tertiary filtration, the responsibility for treatment transfers to the CCWD for disinfection. The responsibility for meeting turbidity requirements will lie with CCCSD, and the responsibility for meeting disinfection requirements lies with the CCWD.
14. Section 13523 of the California Water Code provides that a Regional Board, after consultation with a reception of recommendations from Department of Health Services (DOHS), and if it determines such action to be necessary to protect the public health, safety, or welfare, shall prescribe water reclamation requirements for water which is used or proposed to be used as reclaimed water.
15. The use of reclaimed water by the industrial users named above, for the purposes specified in Finding 8 could affect the public health, safety, or welfare; requirements for those uses are therefore necessary in accordance with Section 13523 of the water code.
16. These water reuse requirements are in conformance with the statewide reclamation criteria established by DOHS as prescribed in Title 22, Sections 60031-60335, California Administrative Code.
17. The DOHS is currently reviewing their guidelines for water reuse. Water reuse applications may be changed once these guidelines are finalized.
18. This action is being taken by the Board for the protection of natural resources, and involves no significant effect on the environment, and is thus categorically exempt from the provisions of the California Environmental Quality Act in accordance with Title 14, California Administrative Code, Chapter 3, Section 15307.
19. The Board has notified the CCCSD, the CCWD, the industrial reclaimed water users, and other interested agencies and persons of its intent to prescribe water reclamation requirements, and has provided them with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
20. The Board, in a public meeting, heard and considered all comments pertaining to the proposed reclamation.

IT IS HEREBY ORDERED, that the Central Contra Costa Sanitary District, Contra Costa Water District, Shell Oil Company, TOSCO Corporation, and Rhone-Poulenc, pursuant to the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The treatment, storage, distribution, or reuse of reclaimed water shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. No constituent of reclaimed water shall be allowed to escape from the designated use area via surface flow.
3. Reclaimed water shall not be used as a domestic or dairy animal water supply. There shall be no cross-connection between potable water supply and piping containing reclaimed water. Supplementing reclaimed water with water used for domestic supply shall not be allowed except through an air-gap separation. An air-gap or reduced pressure principle device shall be provided at all domestic water service connections to reclaimed water use areas.
4. The use of reclaimed water shall not cause the degradation of groundwater used for domestic purposes or cause any change in a quality parameter which would make the groundwater unsuitable for irrigation use.

B. Reclaimed Water Use Specifications

1. CCCSD and the CCWD shall assure that the reclaimed water is at all times an adequately oxidized, coagulated, filtered, disinfected wastewater that meets the following quality limits prior to being provided to the industrial users:

In any composite sample:

- | | | |
|--------------|---------|--------------|
| 1) 5-day BOD | 20 mg/l | (30 day ave) |
| | 40 mg/l | (daily max) |

In any grab sample:

- | | | |
|--------------|-------------------|--|
| 2) Turbidity | 2 turbidity units | average |
| | 5 turbidity units | maximum (no more than 5% of the time during any 24-hour period). |

- 3) At any point downstream of the disinfection facilities where adequate contact with disinfectant is assured: The median number of total coliform organisms shall not exceed 2.2 MPN/100 ml as determined from the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform organisms shall not exceed 23 MPN/100 ml in any two consecutive samples.
2. CCCSD and the CCWD shall discontinue delivery of reclaimed water to the industrial users during any period in which there is reason to believe that the limits specified in B.1 above are not being met. The delivery of reclaimed water shall not be resumed until all conditions which caused the limits in B.1 to be violated have been corrected.
3. Reclaimed water shall not be used for public consumption.
4. Adequate measures shall be taken to minimize public contact with reclaimed wastewater. Conspicuous warning signs with proper wording

of sufficient size to be clearly read shall be posted at adequate intervals around the use area, unless public access is otherwise restricted.

5. All reclaimed water distribution lines and sprinkler systems shall be appropriately tagged with conspicuous warning signs with proper wording of sufficient size (at controller valves, outlets, etc.) to warn the public that the water is not safe for drinking or direct contact. Tank trucks used for carrying or spraying reclaimed wastewater shall be identified as such with clearly read warning signs.
6. Reclaimed wastewater shall not be applied where it could contact drinking water facilities, or enter areas where food is handled or eaten or areas not under control of the user.
7. There shall be at least a 10-foot horizontal and 1-foot vertical separation (with the domestic water above the reclaimed pipeline) between all pipelines transporting reclaimed water and those transporting domestic water, unless otherwise authorized by the Executive Officer pursuant to approval by the State of California Department of Health Services.
8. Use or installation of hose bibs on any reclaimed irrigation systems, regardless of hose bib construction or identification, shall not be permitted.

C. Provisions

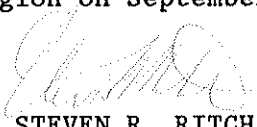
1. Maps showing use areas at the industrial facilities shall be updated to show new locations of reclaimed water use when and if such changes are made. A map showing reclaimed water use areas at Rhone Poulenc shall be submitted by November 1, 1991.
2. The filtration rate at the CCCSD facilities shall not be greater than one gallon per minute, as specified in the project description report cited in Finding 4 of this Order, until that time when the filter media has been replaced or augmented by new media, and upon demonstration that the turbidity requirements can be achieved utilizing the rehabilitated media and higher flow rates. The filtration rate at any time thereafter shall be at a rate necessary for achieving the turbidity requirements, but shall not at any time exceed 5 gallons per minute per square foot.
3. Any wastewater generated by reverse osmosis processes applied to the reclaimed water at the industrial facilities shall be disposed of in a manner acceptable to the Executive Officer.
4. The chlorine contact time shall not be less than 90 minutes.
5. Additional parties may be authorized by the Executive Officer to use reclaimed water under the authority of this permit.
6. Reclaimed water shall not be used for purposes other than those specified Finding 8 of this Order unless the Executive Officer finds

that the requirements specified herein are appropriate to such uses, and if such uses are not covered under Regional Board Order No. 91-042, or any amendment thereto.

7. The CCWD shall file written requests with this Board for any proposed changes in users, uses, or use areas (except those uses which fall under the jurisdiction of Regional Board Order No. 91-042, or any amendment thereto). Such requests shall be accompanied by comments by the Contra Costa County Health Department on the proposed changes and shall be filed at least 120 days prior to desired implementation, except in case of drought emergency.
8. The Executive Officer is authorized to prohibit the use of reclaimed water by specific users if non-compliance with the requirements of this Order has been documented.
9. The CCWD shall file reports documenting compliance with the water quality requirements of this Order according to the attached Self-Monitoring Program. Data supplied by CCCSD may be used for this purpose.
10. The CCWD and CCCSD jointly shall submit the revised Engineering Report describing the contingency plan that will assure that effluent not meeting the requirements of Specification B.1 will be excluded from the reclaimed water distribution system.
11. The CCWD shall file with this Board documentation of compliance with the cross-connection prohibitions and labeling requirements of Specification B.4, B.5, B.7, and B.8 of this Order for the facilities of the CCWD and of the industrial users. This shall include observation of potential for public or worker exposure to wastewater.
12. The CCWD and CCCSD jointly shall submit the revised Engineering Report to the Regional Board which provides a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, compliance with the terms and conditions of this Order shall be maintained.
13. The CCCSD, CCWD, and industrial users shall maintain in good working order and operate, as efficiently as possible, any facility or control system installed or as modified to achieve compliance with this Order.
14. The CCWD shall conduct an annual inspection of use areas to assure compliance with this Order.
15. The CCCSD, CCWD, and industrial users shall permit the Board or its authorized representatives, in accordance with Section 13267(c) of the California Water Code:
 - a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;
 - b. Access to and copy of, at reasonable times, any records that must be kept under the conditions of this Order;

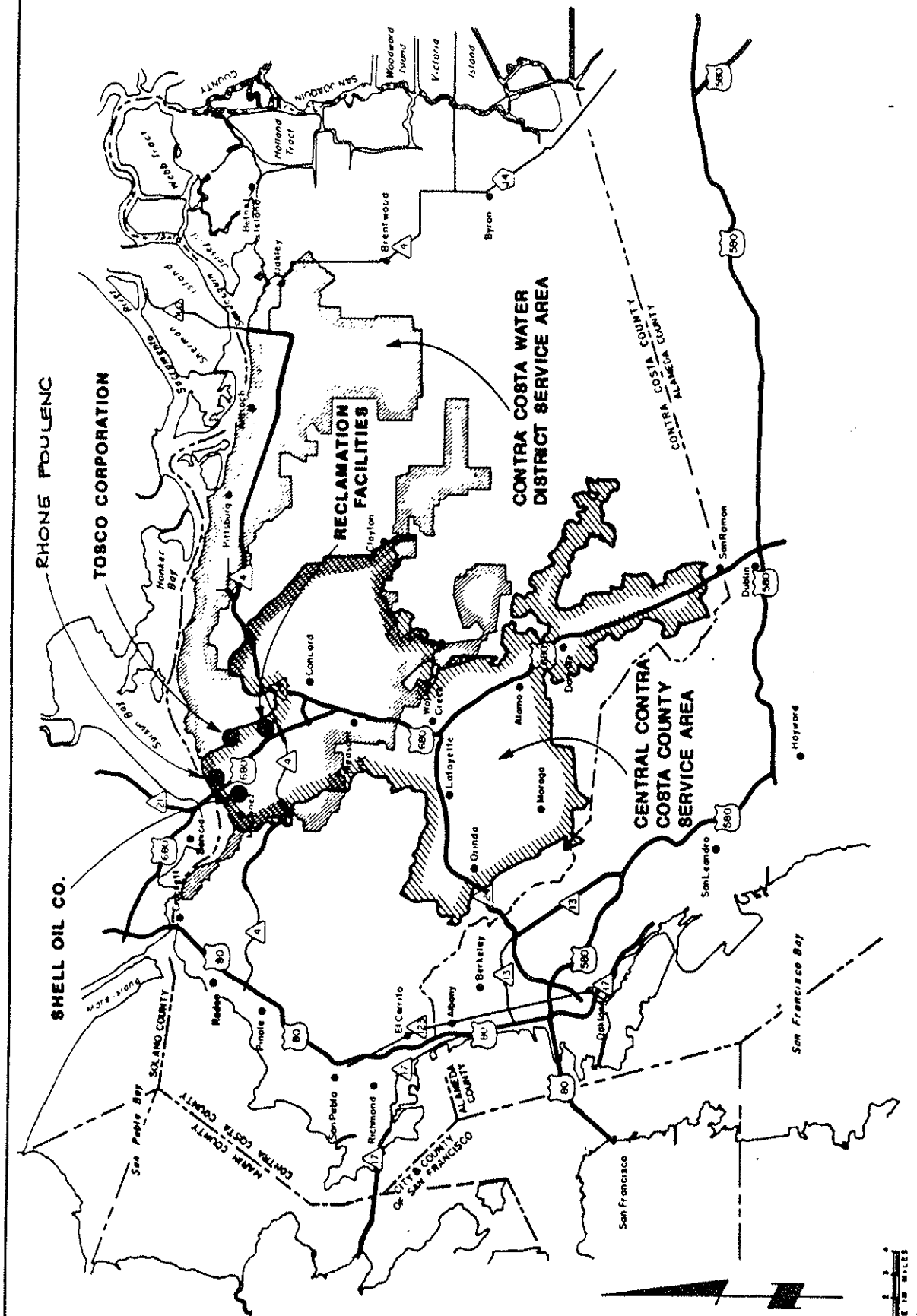
- c. Inspection, at reasonable times, of any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; or
 - d. To photograph, sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order.
16. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
- a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized reuse;
 - d. Endangerment to public health or environment that can only be regulated to acceptable levels by Order modification or termination.
17. The reclaimed water users, in the event of any change in control or ownership of water reclamation and reuse facilities, shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Board.
18. This Order supersedes Order No. 79-34. Order No. 79-34 is no longer applicable and hereby rescinded.
19. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on September 16, 1991.


STEVEN R. RITCHIE
Executive Officer

Attachments:

A. Location Map



ATTACHMENT A
LOCATION MAP

Central Contra Costa County Sanitary District
Contra Costa Water District
Reclamation Facilities